International Journal of Management and Economics
www.managementjournals.net
Online ISSN: 2664-7079, Print ISSN: 2664-7060
Received: 06-03-2021; Accepted: 08-04-2021; Published: 11-05-2021
Volume 3, Issue 1, 2021, Page No. 38-40

Agriculture for better health: learning on GM crops from Indian perspective

A Ruksana Banu[1], A Abdul Raheem[2]
[1] Assistant Professor, Department of Business and Accounting, Muscat College, Oman
[2] Associate Professor, Department of Economics, The New College (Autonomous), [University of Madras], Chennai, India

Abstract
The issue relating to GM crop have generated intense public debate not only in India but many other parts of the world, including developed countries where production and consumption of Genetically Modified Foods are high. Despite the fact that the issues under banter incorporate the expense and advantages of the GM varieties and the potential safety concerns, the result of the discussion varies from one country to another. Though, it's widely claimed that GM crop offers promise for meeting most of our food requirements, like all new innovations, it also poses certain apprehensions and risks. Moreover, any solutions designed to leverage new technologies for better food grain production will have to work in the context of rising Indian population, growing incomes that lead to changing diets, and climate change that will likely to put pressure on already scarce resources.

Keywords: GM crops, biotechnology, agriculture, health, genetic engineering

Introduction

An evaluation made by National Centre for Agricultural Economics and Policy Research (NCAEP) of agriculture research body, Indian Council of Agriculture Research (ICAR), the country desires to increase the food grain production by 1.34 per cent annually to 280.6 million tonnes (MT) by 2020-21, to meet the requirements of ever growing population which is likely to be 1500 million at that time [1]. However long food and nutritious security to this enormous populace will be the significant social issue and passing by latest thing, food production should be twofold. The big issue is whether the conventional technologies are sufficient to meet the alarming challenge of feed the growing population with inadequate land and water resources [2]. In expansion, the negative impact of worldwide environmental change forces limits on crop production.

Scarcely any recognized researchers are vouching that the biotechnological application in agriculture, just as presentation of GM crops, are the persuasive apparatus to amass the test of food and nutritious security [3]. They could likewise lessen the production cost. Today, most of GM crops are filled in developed nations and focus on the necessities of commercial formers [4]. Farmers in developing countries like China and South Africa are slowly more opening to embrace GM crops. Moreover, 16 million hectares are being filled in agricultural nations, by 4.5 million ranchers, who are for the most part limited scope farmers in China and South Africa, developing GM Cotton.

Though, the issue describing to GM crop have generate intense public debate not only in India but many other parts of the world, as well as developed countries where production and consumption of Genetically Modified Foods are elevated. Even though the problems under debate include the cost and benefits of the GM varieties and therefore the possible safety concern, the results of the talk differs from country to country [5]. While, it's extensively claim that GM crop offers assure for meeting most of our food needs, like all new innovations, it also pose certain apprehension and risk.

Potential benefits of using GM crops

An ethical imperative for creating GM crops enthusiastically and economically available to people in developing countries that required them [6]. In its discussion paper it list out the likely benefits of using GM crops as follows:

1. The GM crops may attend to the problem of pest infestations, diseases and poor weather condition which may considerably lower crop yields, where other traditional breeding techniques have fail. To cite a model, a large portion of the cotton filled in China in 2002 was hereditarily changed to supply substance that is harmful to the cotton bollworm, an irritation that pulverize many cotton yields of that zone, which guarantee counteraction of apply the poison straightforwardly by showering the harvests. The benefits if the 'Bt Cotton' are the abatement in pesticide use, an ascent in returns and benefits, and medical advantages for farm workers who regularly be pertinent pesticides without defensive pinion wheels.
2. GM crops are genetically modified to be challenging to bacterial, fungal and viral infestations. Model remembers research for yams to upgrade viral obstruction and bananas changed to oppose the dark sigatoka growth.
3. GM crops can withstand environmental stresses like drought, heat, frost, salty or acid soil.
4. Plants are regularly hereditarily adjusted to be open minded to a chose weed executioner.
5. Crops can be hereditarily adjusted to contain extra supplements that are missing from the weight control plans of numerous individuals in agricultural nations.
6. Plant can be genetically adapted to generate vaccines and medicines.

Impending health concern consuming GM crops

USA a immense transaction of the corn and soya-beans are produced enclose some part of genetically modified material. The Environmental working gathering of the US minimalistically appraises that the every American burns-through around 190 pounds of GM food sources per annum [7]. A few group feel that the results of GM crops on human wellbeing aren't enough perceived. Picky shoppers are stressed over these potential wellbeing impacts:

[a][a] The significant wellbeing worry over GM innovation is its possible ability to make new allergens in our food supply. Allergies normally are bringing resting on by proteins; about each transmit of genetic substance from one congregation into an alternative one show the way to arrangement of novel proteins. Besides, the Genetic designing can augment the measure of current allergens before through a food or supplement allergenic properties into a food that didn't before contain them [8]. It also can end in fresh allergen we've never before known.

[b] Genetic engineering relies very much on antibiotics to direct experiment and over usage of antibiotics can potentially reason the event of antibiotic resistant pathogens. Though, the few wellbeing associations, including WHO and American Medical Association, have stood up against the need for the use of those anti-toxins to be eliminated of the strategy for making GM food sources.

[c] The standard of GM crops in development is designed to hold a quality for pesticide showdown; most are 'Gathering Ready', which means they will be showered with Monsanto's glyphosate herbicide assemble without being hurt. The thought is that if the actual yield is impervious to assemble, you'll splash it to execute any weeds imperil the plant unafraid about the mischief your harvest. Additionally, the Glyphosate has been corresponded to visit medical conditions in creature considers, among them birth abandons, regenerative harm, malignant growth and endocrine interruption.

[d] Foreign hereditary material during a host can cause other hereditary material in that host to act unpredictably. Qualities are regularly smothered or over communicated, causing a decent kind of results. One result of over expression, for instance can cancer [9]. Therefore, the nutritional problems also can result from the transfer. In one model, cows that ate Roundup Ready soybeans delivered milk with more fat in it. In another model, milk from cows infused with a hereditarily designed development chemical was found by number of analysts, remembering those distributed for diary Lance, to have significantly more elevated levels of a compound alluded to as insulin like development factor-1, which is connected to human bosom, colon and prostate malignant growths.

GM crops in India

After having passed the much hyped Food Security Bill, which remains generating considerable debate and even sections within the govt questioning the viability of the scheme it envisages, favourable arguments emerged in favour of introducing GM foods and crops so as to satisfy the wants of the scheme on an extended term basis. A definitive report of the Technical Expert Committee (TEC) discovered by the high court following a public interest request (PIL) with respect to the ecological arrival of hereditarily changed creatures (GMO) turned into even more significant during this specific situation.

The report, delivered on June 30, had discovered significant holes inside the current administrative framework and dismissed the proposition to deliver GM crops on the base that there's no convincing justification all the release of Bt (Bacillus thuringiensis, a generally happening bacterium found in creepy crawly rich living spaces and soils) for food [10]. The report submitted to the court, with disagreeing note from Mr.,R.,S. Paroda, agribusiness service's candidate, doesn't make reference to 10-year ban on field preliminaries of GM crops as proposed inside the between time report. All things being equal, it's forced four conditions for considering permitting preliminaries of GM crops for business discharge.

The conditions recommended are fixing a secretariat of specialists to repair holes in bio-wellbeing convention, lodging the new bio-innovation administrative in one or the other climate or wellbeing service in situ of service of science and innovation, ID of explicit destinations for directing of field tests and compulsory common society investment as a piece of danger the executives procedure. When these conditions are met, the Technical Expert Committee (TEC) had proposed that the ways should just be permitted ashore possessed by GM corp application and not on rented land as done by and by [11].

Also, the panel had suggested that the GM crops shouldn't be permitted in zones of root or variety in light of the fact that the TEC's arrangement is by all accounts that the release of a GM crop into such zones could have incredible repercussions and contrarily affects non-GM crop assortments [12]. It's prominent that to legitimize the presentation of GM corps in territories of source "there should be exceptionally convincing reasons" and a shortfall of "different decisions". "GM crops that give steady benefits or answers for explicit and restricted issues aren't adequate motivation to legitimize such delivery. The TEC didn't track down any such convincing reasons under these conditions.

The TEC had additionally noticed that the administrative framework 'has significant holes and these would require reexamining, venture and relearning to fix", and these had the chance to be tended to prior to directing more field preliminaries [13]. It's additionally elaborate a ban on field preliminaries of Bt in food corps proposed for commercialisation until there was more authoritative data from an adequate number of learns about the drawn out security of Bt crops.

Other than these specialized focuses the TEC had really thought to be a decent range of positions and discernments on the guideline of GM crops, including a conviction that the guidelines was over the top which it confined the extent of biotechnology and kept the benefits from getting GM yields to society, particularly the poor [14]. Another view was that this innovation was moderately new and there was restricted data on security, particularly sanitation, and along these lines the impacts of future and broad utilization and business arrival of GM crops on the climate [15]. This view pushed that it very well may be judicious to hold out broad field preliminaries to measure the wellbeing and natural parts of permitting GM crops.

Conclusion

To have, or to not have, GM harvests might be a seething discussion in India today. While rivals of GM crops refer to a few purposes behind dismissing such new advances, many contend that we can't easily overlook this component and assortment of holes in examination and activity stay to be filled. As we

understand, researchers face the task of collecting much more evidence on the links among traditional agriculture and new technologies in the form of GMOs and on how they can be effectively exploited to improve food grain production. But, it is also important not be paralyzed in the face of a lack of evidence. For instance, more could be done to invest on research to encourage our own scientists for an effective conclusion from India point of view rather than depending purely on MNCs. Above all food cannot be viewed just like any other commodity- it is a basic human need, like air, and policies must reflect this reality. Finally, any solutions designed to leverage new technologies for better food grain production will have to work in the context of rising Indian population, growing incomes that lead to changing diets, and climate change that will likely to put pressure on already scarce resources.

References

1. Phipps RH, Park JR. Environmental benefits of genetically modified crops: global and European perspectives on their ability to reduce pesticide use. Journal of Animal and Feed sciences,2002:11(1):1-18.
2. Alagh YK. The future of Indian agriculture. National Book Trust, India, 2013.
3. Alagh YK. The future of Indian agriculture. The Indian Economic Journal, 2011:59(1):40-55. Fan S, Pandya-Lorch R. (Eds.). (2012). Reshaping agriculture for nutrition and health. Intl Food Policy Res Inst.
4. Gelli A, Hawkes C, Donovan J, Harris J, Allen SL, De Brauw A, Ryckembusch D. Value chains and nutrition: a framework to support the identification, design, and evaluation of interventions, 2015.
5. Fanzo J. IFPRI's 2020 conference on leveraging agriculture for improving nutrition and health: keeping the momentum and translating ideas into action. Food Security,2011:3(2):263-265.
6. Von Braun J. Food and financial crises: Implications for agriculture and the poor, 2008, 20. Intl Food Policy Res Inst.
7. Mogilna N, Magufwa A. Genetic modified foods: advantages and disadvantages, 2012. "Economics for Ecology" ISCS'2009, 98.
8. Mohylna NO, Magufwa A. Genetic modified foods: advantages and disadvantages (Doctoral dissertation, Видавництво СумДУ), 2009.
9. Thomas S, Burke D, Gale M, Lipton M, Weale A. The use of genetically modified crops in developing countries, 2003.
10. Sood AK, Goel PS, Vijayan M, Rai M, Talwar KK, Datta A. Inter-Academy Report on GM Crops. September, unpublished, downloadable from http://bit. ly/cQbyCI, 2010.
11. Byravan S. The Inter-Academy Report on Genetically Engineered Crops: Is It Making a Farce of Science?. Economic and Political Weekly, 2010, 14-16.
12. Giri J, Tyagi AK. Genetically engineered crops: India's path ahead. Nature India, 2016, 30.
13. Cohen JI, Paarlberg R. Unlocking crop biotechnology in developing countries—A report from the field. World Development,2004:32(9):1563-1577.
14. Scoones I. Mobilizing against GM crops in India, south Africa and brazil. Journal of agrarian change,2008:8(2-3):315-344.
15. Mehta-Bhatt P, Ebora RV, Cohen JI, Zepeda JF, Zambrano P. An overview of regulation, perceptions and priorities for GM crops in Asian countries. Asian Biotechnology and Development Review,2005:7(3):9-24.
16. Jacobsen SE, Sørensen M, Pedersen SM, Weiner J. Feeding the world: genetically modified crops versus agricultural biodiversity. Agronomy for sustainable development,2013:33(4):651-662.